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T R O P I C A L H O U S I N G & P L A N N I N G

M O N T H L Y B U L L E T I N

for Dr. C. A. Doxiades*

CLASSIFICATION SYSTEM USED BY DOXIADIS ASSOCIATES

A The Problems

B The Policies

C The Programs

D People, Development, and Ekistics**
- Geographic factors
- Industry
- Agriculture
- Transportation

E Houses

F Structures (exclusives of Houses)

G Community services

H Regions

I Major urban centers

J Market towns
(medium-sized and small towns)

K Villages
Rural land

L Farms

M Surveys
- Census data
- Topographical surveys

N Research

O Planning

P Financing

Q Urban land

R Labor

S Materials

T Construction
(systems of building and costs)

U Implementation

V Management

W Administration

X Legislation

Appendix

**Refers to centers of activities in relation to their surrounding regions.

*This report has been compiled for private circulation only by Prof. J. Tyrwhitt, 77 Trowbridge St. Cambridge, Mass., USA.

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Pakistan. Planning Board, The first five year plan 1955-60 (draft). Karachi, 1956, 2 vols., tables. Dry

The Government of Pakistan announced the appointment of the Planning Board in 1953, with the purpose and terms of reference following:

The economic and social objectives of Government's policy are well-known. They are to develop the resources of the country as rapidly as possible so as to promote the welfare of the people, provide adequate living standards and social services, secure social justice and equality of opportunity, and aim at the widest and most equitable distribution of income and property.

Terms of Reference:

1 To review the development that has taken place since Independence.
2 To assess the resources - material and human, which can be made available for development during the next 5 years beginning April 1954.
3 To prepare a national plan of development based on the fullest possible utilisation of these resources for implementation in a period of 5 years from 1st April, 1954, as a step towards the attainment of the economic and social objectives of Government's policy.
4 To make proposals regarding the administrative machinery best calculated to assure the successful implementation of the Plan.
5 To make any other recommendations which in the opinion of the Board will contribute towards the success of the Board.

The Report has been divided into 5 parts, described by the Board as follows:

Part I explains the social and economic objectives of Government's policy which have guided the group in formulating the Plan and presents an outline of the Plan. Part II is an attempt to state the fundamental concepts and methods of development embodies in the Plan. Part III states the Board's views on the improvements in public administration required for the success of the Plan. Part IV assesses the financial resources -- both internal and external -- potentially available for development during the five-year period, and the likely course of population. Part V sets out the programmes of development, the priorities we recommend, and the major policies we advocate for the period of the Plan in each main field agriculture, irrigation, power, industry, transport and social services.

A chapter on housing and settlements appears in volume II, Section E, Social Services, Chapter 25: Housing and Settlements, It is subdivided as follows:

Introductory, para. 1-5.
Problems and development since Independence, para. 6-17.
Policies, plans, and general projects, para. 18-36.
A public housing and settlements programme, para. 37-65.
  Rural areas, para. 47-50.
  Improvement of existing towns, para. 51-54.
  New settlements, para. 55-65.
A refugee housing and settlements programme, para. 66-81.
  Industrial workers' housing, para. 75-79.
  Miners' housing, para. 80
  Rural workers' housing para. 81
Government-owned houses, para. 82.
Effects and return of the government programme, para. 83-85.
Private investment, para. 86-87.
Administrative centres, para. 88-92.
Administration and implementation. para. 93-99.
A cadre of housing and settlement officers, para. 100-102.

Humid

Fry, Maxwell, and Jane Drew. Tropical architecture in the humid zone. London, B. T. Batsford Ltd., 1956. 320 pp., illus., maps, plans, diagrs., elevations, tables.

In the words of the dust jacket, this book is the product of ten years active designing, planning and building in West Africa, India, and Arabia by two leading British architects.

The scope of the book is best given in the table of contents:

Introduction
General outline of factors affecting design in the humid tropics; people and their needs; climate and its attendant ills; materials and the means of building

Chapter

One Climate
Definition of the tropics and tropical climate; how this can be measured and its effect on men and materials

Two The House
Taken as an example of the effect of climate on design; the design of the house is considered in detail

Three Housing and Town Planning
The problems of group development in developing civilisations in the humid tropics and the data required to make efficient designing possible

Four Shops, Markets and Commercial Buildings
The tropical background to modern commercial architecture and how it is affected by climate.

Five Educational Buildings
The background of educational building in the humid tropics, its present form and future tendencies

Six Health, hygiene and Hospitalisation
The main causes of ill-health and how, architecturally speaking, these can be mitigated; the humid-tropical hospital design.

Epilogue

Appendix
I List of principal building research stations
II Sun data
III Notes on the design of buildings in hurricane areas
IV Earthquake-resistant structures
V The protection of buildings against lightning
VI Water collection and supply in the tropics
VII The performance of building materials in the tropics
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IX Thermal movement and building construction in West Africa
X Air-conditioning and the architect
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XII Notes on special glass
XIII The protection of buildings against termites
XIV Fungus: as affecting decorations and finished surfaces
XV Space and accommodation standards for low-cost housing in the tropics
XVI Building costs
XVII A. Planting in the humid tropics
B. Firewood plantations

In chapter two, The House, the authors consider in detail the effect of climate on design. Although siting includes the usual problems of sun and breeze, the emphasis is on air movement. The following topics are discussed under Sun: Roofs, Walls and Openings, Glass, all well illustrated with diagrams and photographs at the end of the chapter, Most of the text under the heading Roofs is pertinent:

"Great heats are generated during the day, and the problem is one of reducing the penetration of heat to the interior and dispersing any accumulation of day-heat to prevent further radiation on sleeping quarters at night.

"It has been found by observation in Dahomey that average ground temperatures lie in the upper levels of air temperature throughout the year; which is to say that solid bodies receive and retain the sun's heat and that therefore unprotected solid roofs heat up, store their heat, and get rid of it by radiation or convection to cooler bodies of air after, and if heavy enough, long after the sun has sunk.

"With air temperature 80° F. a 2-in. concrete slab will show
an upper surface temperature of 121° F.,
a lower " " " 115° F.,
and a mean slab " " 116° F.

"Increase the slab to 8 in. and
the upper suface temperature becomes 101° F.,
the lower " " " 84° F.,
and the mean slab " " 88° F.

"The interval or "lag" between the upper and lower temperatures for a 2-in. slab would be 1 hour 25 minutes, and for an 8-in. slab would be 5 hours. These few figures expose the degree of heating that occurs on a not over-hot day, and the alarming amount of direct transmission that takes place.

"Increase of mass will only increase the heat "lag" and prolong high temperatures during hours of sleep, and the solution lies in producing low shade temperatures in the ceiling slab and dispersing any excess of heat rapidly: in placing between the ceiling layer and the sun a parasol or protection that receives and throws off a high proportion of the sun's heat, combined with some means of letting out or carrying off any reservoir of heat that may be built up. The reverse order will not do: the sun must first be intercepted.

Flat concrete roofs with or without a false ceiling below are undesirable, and are in many cases subject to cracking due to contraction and expansion. If finished in whitened aluminium or whatever might be said to correspond to fresh whitewash, they would throw off a fair proportion of their heat, but would retain, and only later give off, the remainder. Also it is hard to find a white that will remain so for years. If they were made into shallow tanks of water they would take up the lower levels of air temperature throughout the year. If water were continually sprayed on them all over they could, by evaporation, become relatively cool. But economics would make either of the last two alternatives unfeasible for a house, and the normal solution lies elsewhere.

"The methods by which the sun is first kept off the ceiling layer are various. Le Corbusier in houses at Amenabad, India, suits the action to the word and lifts roofs, like parasols, clear of the ceilings, and thereby enjoys his logic and makes a clear architectural statement. But this costs money. He elsewhere has tanked the roof, laid it with soil and allowed vegetation. We ourselves have arrived at a roof having an upper surface of fair reflecting quality, be it asbestos, sheet or corrugated aluminium, held above a ceiling layer, with an adequate air gap between. By sloping the roof one way not only is an expensive ridge avoided and rain collected on one side only, but the hot air that might accumulate between the upper and lower layers is by the natural property of heated air let out at the higher side of the roof, where it is actually blown away by breeze.

"This roof, being built of the lightest materials, has practically no reservoir of heat, and an hour or two after sundown is at night temperature.

We have tried placing lightweight concrete slabs on blocks above concrete roofs, either level or sloping, but found that though they reduce heat the mass of the materials employed leads to storage of heat, and they cannot be compared with the roof just described above, and should be used only where some heat penetration can be borne."

The section on Walls and Openings mentions the use of wide eaves and verandahs as protection against sun, with the warning that the latter cause gloomy house interiors.

Glass is discussed with caution not to use it for windows unless painted. If used, glass is recommended in the form of horizontal louvers, or of larger pivoting shutters, horizontal or vertical, which if they are opaque and of light construction are window and sunbreaker in one, and may be securely locked.

Ground Treatments are of first-rate importance. The more grass and vegetation, the more shade; the less hot pavement or earth, the less light glaring surfaces the better.

Ventilation is explained diagrammatically to prevent blocking of air flow by poor planning.

Day lighting is as important in the humid tropics as in the dry which are commonly thought sunnier, because the former have intense glare due to reflected brilliance from clouds. Diagrams again illustrate methods of overcoming glare by wide eaves, clerestory, pierced canopy, balcony, adjustable louvers, external blinds, vertical screens, pivoted walls, and anti-sun glazing.

The appendix containing comparative data on building costs is reproduced photostatically herewith:

APPENDIX XVI

Building costs

In arranging for supplies of materials to works, the transport of goods by sea is best arranged by shipping agents.

Goods for use overseas are quoted "F.O.B." or "C.I.F." The first set of initials means "Free on Board", indicating that all port transport, insurance and handling charges are paid by the vendor up to and including placing on board in the ship's hold. The second set of initials means that the quotation covers all those charges included above plus freight to port of discharge and insurance, but not unloading charges or handling at the overseas port or port dues; carriage from the port to the site has to be allowed for in addition.

It should be noted that many suppliers of goods, boilers and lifts for example, require to be paid cash against shipping documents and as this is becoming more common and is contrary to the regular conditions of contract, the following special steps are taken to comply with any such reasonable demand and to protect the interest of the building owner.

It is the duty of the purchaser or his agent to ensure that the goods to be shipped do in fact comply with the type and description of the goods required or ordered. In some cases a catalogue number can be quoted and in other cases a visit to the place of manufacture will be necessary. The supplier should therefore be in no doubt as to the quantity, quality, type and description of the goods required.

As soon as the goods are ready and have been crated or packed and despatched to the point of loading, the supplier will send to the purchaser an invoice setting out the quantity and description of goods to be exported and the prices and total sum of money involved. The supplier should specify the number of crates in which the goods are packed and also the shipping mark. As soon as the crates have been loaded the purchaser should receive a bill of lading. He is therefore now in receipt of two documents (1) a certified invoice and (2) a bill of lading. The number of crates and shipping mark mentioned in the bill of lading should agree with the number of crates and shipping mark detailed in the certified invoice. The purchaser or his agent will check that the quantity, type and description of goods mentioned in the invoice are the same as he ordered. He will also check that the prices are as the supplier's estimate, catalogue or agreement.

It is not the custom for shipping agents to examine the crates either at the supplier's works or at the docks to ensure that the crates do in fact contain the goods specified in the invoice. It is of course impossible to open the crates and examine their contents at the docks. Shipping agents rely therefore on the certified invoice and check with the bill of lading.

Goods travelling by sea are usually insured as follows:

1. "With average" – which covers damage caused by the perils of the sea, stranding of the vessel, collision and fire.
2. "With average including theft, pilferage and non-delivery" – this covers risks as above with the addition of the other items specified.
3. "All risks" – this, as it says, covers all risks.

It will be noted that a special policy would have to be taken out to insure against loss of time or profit or delays due to the non-arrival or part arrival or breakage or theft of goods. Generally, goods of an indestructible nature have a low insurance and expensive goods or fragile goods a high form of insurance.

When goods are unpacked and checked the purchaser will inform Lloyds' surveyor or the agent of the insuring company of any losses or breakages. The insurance company will then reimburse the purchaser for the value of the goods stolen, missing or broken provided the policy covers these risks.

Enquiries have shown that the principle of accepting certified invoices is recognised by shipping agents generally and appears to work well. Reputable companies short loading in error will generally make good the deficit without hesitation. It does not appear that contractors insure against loss of time or profit due to non-arrival, theft or breakage of essential goods or plant.

In the event of goods found on arrival failing to conform with the standard specified or ordered, the purchaser would be in a similar position to a purchaser in this country. If the supplier admits that the goods fail to conform to the standard specified he will generally bear the C.I.F. charges of replacement but some firms specifically exclude these charges in their agreements and each case would have to be taken on its merits.

Customs dues

In most tropical countries import duties are payable on goods brought into the country, such duties vary according to the class of goods and whether they compete with home-produced articles, and may range up to 66⅔ per cent of the value of the goods, but more commonly 20 per cent is imposed. Either figure makes a serious addition to the cost of building.

On Government contracts it is generally recognised that there is small point in imposing such duties but there are practical difficulties in allowing goods to be used on such contracts to enter the country duty-free, and still more difficulties in ensuring that such goods are used only on such contracts, although this course has been taken on occasions.

A second alternative is for the duties to be paid, a clear and full record of them maintained and claim for refund at completion of works supported by a certificate that all the goods have been incorporated in the works concerned.

The differences in cost in the tropics or in the temperate zone basically revolve around the

Comparison of labour costs

Labour	Per day Gold Coast Standard Rates	Per day Nigeria			Average rate per day Bombay	Average rate per day Jamaica	Average rate per day Nassau	Rate per day London
		Grade I	Grade II	Grade III				
Mason	9s. 6d.	6s. 1d.	5s. 2d.	4s. 7d.	9s. 8d.	16s. 0d.	40s. 0d.	31s. 4d.
Carpenter and Joiner	9s. 6d.	6s. 1d.	5s. 2d.	4s. 7d.	12s. 0d.	15s. 6d.	40s. 0d.	31s. 4d.
Fitter	10s. 6d.	6s. 1d.	5s. 2d.	4s. 7d.	9s. 0d.	16s. 6d.	42s. 0d.	31s. 4d.
Electrician	9s. 6d. to 14s. 6d.		6s. to 13s.		9s. 0d.	20s. 0d.	54s. 0d.	33s. 8d.
Plumber	8s. 6d.	5s. 8d.	4s. 9d.	4s. 2d.	—	15s. 6d.	42s. 0d.	31s. 4d.
Glazier	9s. 6d.	6s. 1d.	5s. 2d.	4s. 7d.	7s. 6d.	15s. 6d.	36s. 0d.	31s. 4d.
Painter	6s. 6d.	4s. 4d.	3s. 6d.	3s. 2d.	7s. 6d.	15s. 6d.	36s. 0d.	31s. 4d.
Steel bender	7s. 6d.	4s. 0d.	3s. 3d.	2s. 11d.	—	12s. 6d.	—	30s.
Mixers	4s. 6d.	4s. 0d.	3s. 3d.	2s. 11d.	—	10s. 0d.	22s. 0d.	av. 28s. 8d
General labourer	4s. 6d		2s. 9d.		3s. 9d.	10s. 0d.	22s. 0d.	27s. 8d.
Artisans holding Government Trade Cards	—	9s. 0d.	7s. 0d.	5s. 6d.	—	—	—	—

Notes. In some of the above locations there are no standard rates of wages, these being largely governed by supply and demand.

Trade tests are being introduced in the Gold Coast and artisans passing qualifying tests will receive higher wages not yet fixed.

Wage rate increases are under discussion in Nigeria.

differences in the rates of labour, labour being relatively cheaper in most tropical communities, especially the less advanced ones, and the heavy costs of imported material due to customs dues, shipping and insurance.

So far as the relative cost of labour is concerned and the relation of labour costs to cost of material it is misleading to quote these as such costs change from day to day, but as a guide to the present situation, the following figures are true at the beginning of January 1955. It will be seen that only certain tropical countries have been shown but the differences in rates will be sufficient to indicate the principles of disparity of costs resulting from local conditions.

Basic material rates

Unit	Gold Coast	Nigeria	Bombay	Jamaica	Nassau	London
Cement (per ton)	£13	£14	£7	£10	£14	£4 16*s.* 6*d.*
Sand (per yd. cube)	10*s.*	9*s.* 6*d.*	17*s.*	8*s.*	14*s.* 6*d.*	21*s.*
¾-in. Ballast (per yd. cube)	24*s.*	28*s.*	30*s.*	18*s.*	32*s.* 6*d.*	20*s.*
Steel Rod Reinforcement (per ton)	£55	£55	£36 10*s.*	£43 10*s.*	£47	£35
Softwood (per ft. cube)	8*s.*	8*s.*	—	13*s.* 6*d.*	20*s.*	14*s.*
Hardwood (per ft. cube)	12*s.*	14*s.*	—	21*s.*	60*s.*	30*s.* (English Oak)

Note. The above are average rates and are quoted for comparison only, and may vary by location, freight charges, import duties, wharfage charges and the like.

Sand

Can generally be obtained but prices vary considerably. Sea shore and desert sand is widely used. Tests should be made for sulphate content and other impurities.

Comparison of costs of different methods of construction and finishings

The following are average rates of the various types of construction and finishings, as these vary according to the type and magnitude of the building and the location

Construction and finishings

Unit	Wall Construction	Gold Coast	Nigeria	Jamaica	India
Yard super	6-in. solid concrete block wall in cement mortar (1 : 4)	18*s.* 6*d.*	18*s.*	25*s.*	—
Yard super	9-in. hollow concrete block wall in cement mortar (1 : 4)	29*s.* 6*d.*	28*s.*	38*s.*	—
Yard super	6-in. reinforced concrete (1 : 2 : 4) wall including formwork and reinforcement	70*s.*	66*s.* 9*d.*	94*s.*	46*s.* 6*d.*
Yard super	9-in. ditto	80*s.*	78*s.* 9*d.*	103*s.*	56*s.* 6*d.*
Yard super	12-in. local stone random rubble stone wall in cement mortar (1 : 4) with axed face both sides	60*s.*	48*s.* 6*d.*	37*s.*	—
Yard super	Cavity wall consisting of two 6-in. concrete block walls with cavity between	44*s.*	42*s.*	60*s.*	—
Foot cube	Brickwork in cement mortar (1 : 4)	—	—	—	2*s.* 3*d.*

Comparison of costs of different methods of construction and finishings—*continued*

Unit	Wall Construction	Gold Coast	Nigeria	Jamaica	India
	REINFORCED CONCRETE (1 : 2 : 4)				
Foot cube	Beams including shuttering and reinforcement (15 in. × 9 in.)	21*s.*	18*s.* 3*d.*	23*s.* 9*d.*	11*s.* 9*d.*
Foot cube	Columns including shuttering and reinforcement (12 in. × 12 in.)	22*s.* 6*d.*	21*s.* 6*d.*	28*s.*	13*s.* 3*d.*
Foot cube	Column bases including reinforcement	10*s.* 6*d.*	10*s.* 3*d.*	9*s.* 9*d.*	8*s.* 6*d.*
Yard super	6-in. surface concrete (unreinforced)	17*s.* 9*d.*	17*s.*	21*s.*	16*s.*
Yard super	6-in. surface concrete reinforced with mesh	22*s.*	21*s.*	29*s.*	—
Yard super	6-in. suspended concrete floor including reinforcement and shuttering	48*s.* 6*d.*	44*s.* 3*d.*	58*s.*	30*s.*

	Roof Construction	Gold Coast	Nigeria	Jamaica	India
Yard super of roof measured flat	Single-pitch roof with timber trusses and purlins and independent rafters to 20-ft. span and 4-ft. rise	9*s.*	7*s.* 6*d.*	12*s.* 3*d.*	6*s.* 3*d.*
Yard super of roof measured flat	Single pitch roof with 9 in. × 9 in. concrete beams at 10-ft. centres and 2 in. × 6 in. wood purlins to 20-ft. span and 4-ft. rise	11*s.* 8*d.*	10*s.* 8*d.*	16*s.* 9*d.*	7*s.* 9*d.*
Yard super of roof measured flat	Curved top roof with timber trusses 40-ft. span and 5-ft. rise and timber purlins	45*s.* 3*d.*	44*s.* 9*d.*	57*s.*	37*s.* 9*d.*
Yard super	6-in. concrete (1 : 2 : 4) flat roof including reinforcement and shuttering	46*s.*	42*s.* 3*d.*	58*s.*	29*s.*

The cost of a gable is very much the same as a hipped end to the roof provided the gable is not built in stone or other expensive material.

	Roof Coverings	Gold Coast	Nigeria	Jamaica	India
Yard super	Trafford tile asbestos roofing in 8-ft. sheets fixed to timber purlins	15*s.*	14*s.* 6*d.*	15*s.* 6*d.*	—
Yard super	Three-layer felt roofing laid on concrete roofs	16*s.*	—	16*s.*	—
Yard super	20-gauge corrugated aluminium roofing fixed to timber purlins	17*s.*	16*s.*	22*s.*	—
Yard super	Screened mud insulations average 6-in. thick in layers 1½-in. thick to falls to receive tiles	—	—	—	2*s.*
Yard super	1¼-in. roof tiles, size 9 in. × 4½ in. bedded and pointed in cement and sand (1 : 3)	—	—	—	4*s.* 3*d.*

Floor finishings

	Floor Finishings	Gold Coast	Nigeria	Jamaica	India
Yard super	1-in. cement and sand paving trowelled hard and smooth	4s. 11d.	5s. 6d.	9s. 6d.	4s.
Yard super	1-in. coloured cement and sand tiles laid and jointed in cement	11s. 6d.	20s.	26s. 6d.	—
Yard super	1-in. Granolithic paving (1 : 1 : 2) trowelled hard and smooth	6s. 3d.	6s. 6d.	—	—
Yard super	Terrazzo paving with smooth polished surface	43s. 9d. (For 12 in. × 12 in. terrazzo tiles)	20s. (Shell terrazzo)	62s. (Marble terrazzo)	21s. (Marble terrazzo)
Yard super	¼-in. thermoplastic tiles bedded and jointed	18s.	16s.	—	—
Yard super	1-in. Travertine paving, laid complete	£8 14s. 0d.	—	£10 0s. 0d.	—
Yard super	½-in. cement and sand (1 : 4) floated bed for pavings	3s.	3s.	4s. 7d.	—
Yard super	¾-in. ditto	4s.	3s. 9d.	6s. 2d.	—

Wall and Ceiling finishings

	Wall and Ceiling finishings	Gold Coast (Cement and sand)	Jamaica (Cement and sand)	Nigeria (Cement, lime and sand)	India (Cement and sand)
Yard super	Internal plastering including all arrises and sundry labours on block walls including raking out joints	3s. 9d.	3s. 9d.	7s. 9d.	2s. 1d.
Yard super	Internal plastering as last on concrete walls including hacking for key	3s. 9d.	3s. 9d.	7s. 9d.	2s. 6d.
Yard super	Internal plastering as last on concrete soffits including hacking for key	4s. 2d.	4s. 2d.	8s. 3d.	2s. 3d.
Yard super	External plastering including all arrises and sundry labours on block walls including raking out joints	3s. 9d.	3s. 9d.	9s.	2s. 1d.
Yard super	External plastering as last on concrete including hacking for key	3s. 9d.	3s. 9d.	9s.	2s. 6d.
Yard super	¼-in. asbestos cement flat sheeting to soffits and fixing with galvanised flat-headed nails including all cutting and waste	12s.	10s.	12s. 6d.	—
Yard super	½-in. termite-proofed insulating boarding to soffits and fixing to timber joists including all cutting and waste	14s. 6d.	13s.	11s.	15s. 6d.

Painting and Decorating

	Painting and Decorating	Gold Coast	Nigeria	Jamaica	India
Yard super	Prepare and two coats of oil-bound distemper on plastered walls	2s. 9d.	2s. 3d.	3s. 2d.	2s.
Yard super	Prepare and two coats of oil-bound distemper on plastered ceilings	2s. 9d.	2s. 3d.	3s. 2d.	2s. 3d.
Yard super	Prepare and two coats of cement paint on plastered walls	2s. 9d.	2s. 6d.	4s.	—
Yard super	Prepare and two coats of cement paint on plastered ceilings	2s. 9d.	2s. 6d.	4s.	—
Yard super	Prepare, prime and two coats of oil colour on plaster walls	5s.	5s. 6d.	6s. 5d.	—
Yard super	Prepare and paint three coats of oil colour on iron and steelwork	5s. 6d.	5s. 6d.	6s. 9d.	4s.
Yard super	Knot, prime, stop and paint one undercoat and one finishing coat on woodwork	4s.	4s.	5s.	3s.
Yard super	Knot, prime, stop and paint two undercoats and one finishing coat on woodwork	5s. 6d.	5s. 6d.	6s. 8d.	4s.

Water Services

Water Services	West Africa	Jamaica
¼-in. galvanised mild-steel tubing including screwed red lead joints. Foot run	1s. 5d.	2s. 6d.
¾-in. ditto	1s. 8d.	2s. 11d.
1-in. ditto	2s. 1d.	3s. 11d.
Extra for 1-in. elbow	7s.	4s. 2d.
,, ,, ¼-in tees	6s.	2s. 6d.
,, ,, ¾-in. ,,	7s.	3s. 2d.
,, ,, 1-in. ,,	8s.	4s. 2d.
¼-in. copper tubing including "Yorkshire" fittings. Foot run	1s. 8d.	4s.
¾-in. ditto	2s. 5d.	4s. 9d.
1-in. ditto	3s. 4d.	5s. 9d.
Extra for 1-in. elbow	7s.	10s. 10d.
,, ,, ¼-in. tees	4s.	9s. 6d.
,, ,, ¾-in. ,,	6s.	10s. 6d.
,, ,, 1-in. ,,	8s.	15s. 3d.

Rainwater collection tanks

	Per 1,000 Gallons
WEST AFRICA	
Large tanks (approximately 250,000 gallons)	Average £40 0s. 0d.
Medium tanks (approximately 100,000 gallons)	Average £50 0s. 0d.
Small tanks (approximately 5,000 to 10,000 gallons)	Average £90 0s. 0d.

Table of costs per cubic foot

	Rate per cubic foot
WEST AFRICA	
University Halls of residence with dining hall, kitchen and common rooms of cross-wall construction with reinforced concrete floors and timber roof construction with normal finishings (3 floors)	3s.
University library of reinforced concrete framed construction with reinforced concrete floors, block work walls, main roof timber construction with some concrete flat roofs and with normal finishings and electric passenger lift (6 floors)	4s. 7½d.
Assembly hall of reinforced concrete framed construction with block work walls, timber roof construction, stage, reinforced concrete balcony and good finishings 40–60-ft. span	3s.
Administration block of reinforced concrete with reinforced concrete floors, timber roof, block work walls and normal finishings	2s. 7½d.
School dormitory blocks of reinforced concrete framed construction with concrete floors, block work walls, timber and concrete roofs and plain finishings	av. 2s. 9d.
Science blocks constructed as last with laboratory benches and services	av. 3s. 6d.
Lavatory and shower blocks with fittings	av. 3s. 3d.
Dining halls, exclusive of tables and benches	av. 2s.
Domestic dwellings of one storey	2s. 9d. to 3s. 6d.
Domestic dwellings of two storeys	2s. 9d. to 3s. 3d.
Block of maisonettes with reinforced concrete frame and concrete floors and flat roofs and good finishings	4s.
Block of flats as last	3s. 6d.
Community centre	3s. 2d.
Regional library of one storey	2s. 3½d.
Bank with strong room and offices over in reinforced concrete framed construction, reinforced concrete floors and flat roofs, external cladding and electric passenger lift	5s. 6d.
Department store in reinforced concrete framed construction with concrete floors and flat roofs, block work walls, normal finishings (no internal partitions or walls)	2s. 3d.

	Rate per cubic foot
JAMAICA	
Government office block – three storeys with reinforced concrete frame and floors, block-work walls, part timber and part reinforced concrete flat roofs covered with felt and spar chippings, plain finishings	4s. 3d.
Bank premises with offices over – four storeys reinforced concrete frame and floors and roof, strong room, part air-conditioned, very high standard of finish including bank fittings, passenger lift	10s. 3d.
University arts block – reinforced concrete frame and floors, block work walls, timber roof construction, part covered felt and part corrugated aluminium, plain finishings	3s. 1d.
University library block – reinforced concrete frame and block work walls, floors part reinforced concrete roof and part timber covered with felt. Metal library shelving, plain finishings	4s.2d.
University halls of residence with dining halls and kitchens and common rooms with reinforced concrete floors, block-work walls and timber roof construction with normal finishings.	4s. 9d.
University science schools constructed as last with laboratory benches and services	3s. 9d.
NASSAU	
Hospital with reinforced concrete framework, floors and roof, block work walls, air-conditioning to private wards, X-ray rooms, operating theatres, nursery, etc., normal finishings. Excludes hospital and kitchen equipment and sterilizers	9s. 4d.
Domestic dwellings	8s.
INDIA	
Hospital ward blocks with brick walls, part reinforced concrete frame, hollow tile floors and flat roof, terrazzo pavings, plaster walls and ceilings with some terrazzo dados	2s. 3d.
Operating theatre block consisting of casualty department on ground floor, three operating theatres on first floor with ancillary apartments and library and staff sitting room, etc., on second floor, constructed as last and with air-conditioning installation	3s.

Programa de viviendas en Caracas. (Vivienda & planeamiento, 1956, no. 21-22, pp. 15-16, with illus.)

Text in Spanish

Caracas has undergone a period of visible transformation. One of the most notable changes that took place in the urban scene is the housing project realized by the Banco Obrero, as it is called "cerros de la zona central" (hills of the central zone). The Cerro Piolto, inaugurated in December 1954, took place on adjoining hills and comprises a total of 6,431 dwelling units. The Unidad Residencial 2 de Diciembre, begun at the end of 1955 comprises a total of 2,366 dwelling units. Both projects form part of the Plan de Vivienda Social, which has as its object, when completed in approximatelysix years, the total eradication of unhygienic region in the metropolitan zone of Caracas, substituting for it healthy and comfortable living. The cost of the Plan mentioned has been calculated at 430 millions of bolivars (a bolivar equals 30 cents in U.S. currency).

History: The expansion of Caracas is of recent origin and was initiated timidly after World War I, following the old plan and urban colonial style. Without doubt, its transformation and growth started in 1936, was spectacular. The old city, with red roofs, converted itself rapidly into a modern metropolis, breaking through its colonial boundaries by spreading into the surrounding area of the Valley of Caracas. In 1936, there were 163,000 inhabitants, in 1941, 359,000, in 1951, 718,000. In less than 15 years the metropolitan area of Caracas had increased five times in inhabitants. The built-up area that, in 1936, was 542 hectares, increased in 1951 to 4,588 hectares.

The problem of urban housing in Venezuela was also an urgent matter in the environs of Caracas. The first increase of the population precipitated groups of people overflowing into rural zones. Building in these sections was lawless, not conforming to any plan, nor to the sanitary regulations. This resulted in a large percentage of dwellings which were a menace to health, morals, and security of families. The growth of this type of housing was parallel to the increase in population. More and more people spread into rural areas because they were displaced from the urban zone. According to information prepared by the Banco Obrero the great disproportion between the number of existing houses and the formation of new family groups, did not permit housing of middle cost which included healthy housing in a minimum space. The paradoxical situation arose of unoccupied apartments in the city and promiscuous housing in the environs. The number of people in 1953 was 53,616, which meant an increase of 589.51 percent after 1941. According to information of the Banco Obrero there were 310,972 people in the metropolitan area of Caracas in 1951. Hills forming the Valley of Caracas, naturally green zones around the city and decorative elements, were transformed into miserable slums.

Typical of this situation were the hills near the central zone, extending from the surrounding mountains to the west of the capital to its center called Plaza Urdaneta of the redevelopment project El Silencio. Part of this zone was made an experimental unit to solve the problem of housing and to learn solutions applicable to the city of Caracas and others in the interior of Venezuela. The Cerro Piloto constitutes the greatest project of housing in this zone. Its capacity includes 6,431 families, with a total of 32,470 persons. The undertaking of great magnitude, with an adequate architectural and urban plan, was realized in less than one year, and at a total cost of 80,195,230 bolivars.

It was intended to have the members of the community take an active part in collaborating with the Banco Obrero in achieving objectives of social service for the community.

8.

E.

Humid

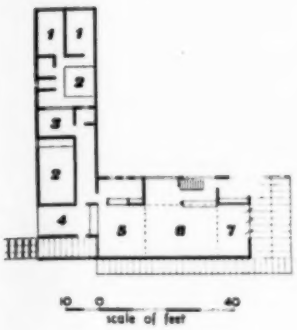
Recent buildings in the Gold Coast. Architects: James Cubitt and Partners. (Architectural review, May 1956, vol. 99, pp. 230-241; with illus., maps, plans.)

The climate of West Africa is oppressive, relative humidity extremely high, and the maximum sun temperatures as hot as those anywhere on the equator. Owing to the humidity, shade temperature does not exceed 96° F and the altitude -- about 900 feet -- means fairly cool nights. The jungle is mainly secondary; that is to say the primary jungle had been cut down for farming in the past and the great trees have forced their way up through the banked and tangled lower vegetation.

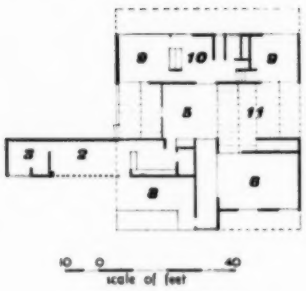
The architects describe their plans and buildings for Kumasi College of Technology, and offices, Memorial Hall, and housing at Accra. Photostatic descriptions of the concrete bungalows, together with plans and illustrations appear on following pages:

4. HOUSING

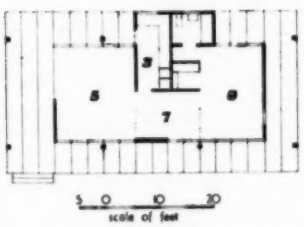
Facing page, top, Library Board bungalow, Accra. Bottom left, and right, above, examples of different types of bungalows in the Volta River project. Right, extreme bottom, the Hardy guest house.



library board bungalow, ground floor.



type house, Volta River project.



guest house at Accra.

keys: 1, boy's room. 2, yard. 3, kitchen. 4, garage. 5, dining room. 6, living room. 7, study. 8, car park. 9, bedroom. 10, dressing room. 11, patio.

Library Board bungalow

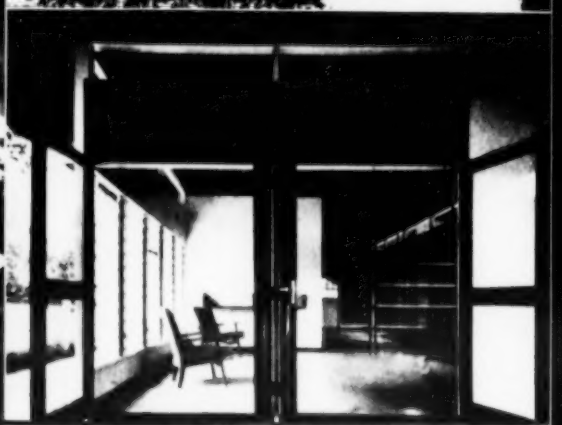
The bungalow has a r.c. frame with sandcrete block infillings, perforated concrete blocks and various types of timber panel. The ground floor is cement paved ; other floor finishes are semastic tiles. Joinery is painted or polished hardwood.

Volta River project

These houses, consisting of two types, were intended to house senior officials concerned with the planning of the Volta River project and Tema harbour. The site is some distance from Accra, near the airport, and is part of a plan for a new residential area. There are some twenty houses in all, which were built under a cost-plus contract, since at the time it was virtually impossible to get any contractor to give firm estimates. They were the first (in 1951) to be designed by Cubitt's in Accra.

Guest house at Accra

This small bungalow, consisting of two rooms, is built in the grounds of an existing house for the use of house guests. Two special features are the slatted timber ceiling slung beneath the r.c. beams, thus giving permanent cross ventilation below the roof, and the use throughout of standard glass adjustable louvres.



Dry

U.S. Operations Mission to Israel. International Cooperation Administration. Housing -- an increasing rather than decreasing problem. Report to the Government of Israel, by Harold Robinson. Tel Aviv, The Mission, 1956. 152 pp., plans, tables. (Technical Assistance Program. USOM housing project).

No attempt has been made to summarize this work since it is of such importance that it is felt that the readers of this bulletin should see the whole book. The following Table of Contents indicates coverage of the work:

Conclusions
Recommendations
Accomplishments

I General
A Five Principal Objects
B Contacts
Organization of housing department
Housing companies
II ICA housing policy

III The need for housing
First four year plan
Second four year plan
Types of information needed
Construction progress
Development budgets
IIIA Economic assitance
Counterpart expenditures

IV General technical assistance
A Housing standards
B Expandable house
D Suggested technicians

V Specific technical assistance projects
Summary of research on comparative costs
Interim report on six research projects
Proposed research

VI Participants

VII Building materials

VIII Construction
IX
IX Design

X Management

XI Financing

XII Conclusion

Concrete Association of India.
Concrete structures in India. Bombay, The Association, 1955.
unp., illus.

Booklet of photos. of work in concrete with a few examples of minor structures in villages of India.

Dozier, Craig L. Northern Paraná,Brazil, an example of organized regional development. (Geographical review, July 1956, vol. 46:3,pp. 318-333, with illus., maps, table.) Humid

The original capital for the opening up of Northern Paraná was British. The unique character of the enterprise lay not so much in its furnishing of the initial capital as in its objectives. There was nothing of a peculative nature -- the desire for quick profits about the venture. The British were interested not simply in the sale of land but in the development of an entire region and realized that this must rest upon large numbers of small farmers, urban centers, and ready accessibility.

The initial impetus for Northern Paraná's development came from a Scotsman, Simon Joseph Fraser, Lord Lovat. Long interested and problems of colonization, he* "had previously been instrumental in launching the Gezira scheme in the Anglo-Egyptian Sudan. In the winter of 1923-1924, Lord Lovat was invited to be a member of the Montagu Mission, which had been formed at the request of the Brazilian government to make a confidential study of the Brazilian economy, with the objective of developing its resources. It was expected that if the recommendations of the experts were followed, more British capital would be forthcoming. While in Brazil, Lovat visited Northern Paraná at the invitation of some Sao Paulo fazendeiros. He was impressed by what he saw -a vast untouched domain with a subtropical upland climate, well-distributed rainfall, and excellent terra roxa soils derived from the disintegration of basaltic lavas.[4]

In 1925, Lovat raised enough capital in England to form the Paraná Plantations, Ltd., a London company operating two Brazilian subsidiaries, one for colonization (Companhia de Terras Norte do Paraná) and the other for transport (Estrada de Ferro Sao Paulo-Paraná). It was in this integration of the colonizing enterprise with the building of the railroad (a continuation of a short line built earlier from Ourinhos to Cambará) that the venture differed so markedly from previous Brazilian methods of development.

The Companhia de Terras Norte do Paraná (North Paraná Land Company) then proceeded to purchase from the state 12,463 square kilometers of undeveloped forest land west of the Tibagí River. The transaction took two years to accomplish. A preliminary survey had to be made to determine what land was most suitable, and a long time was spent in adjusting claims. It was Lovat's conviction that security of tenure was one of the very keystones of successful colonization.

Construction of the railroad extension from Cambará began in 1928, and meanwhile groups of surveyors arrived at the old, decayed settlement of Jataí, founded in 1855 as a military colony. In July, 1929, they crossed the Tibagí and began the detailed survey of the Company's lands, making special note of the stream sources. The first clearing was made just inside the eastern limit of the domain, before the sale of lots had begun. The site selected as headquarters for the colonization enterprise contained in 1931 three crude wooden buildings - two to serve as "hotels" for visitors and Company personnel, the third as office quarters. There were as yet no railroad or highway connections with the outside; horses and mules were the only means of transport for men and goods. These were the crude beginnings of the modern city of Londrina (Fig.1).[5]

While the railroad was being pushed westward from Cambará, the plan of colonization was taking form. The objective was to subdivide the land into lots according to a standard pattern; roads were to be constructed along the heights of all the divides, the lots then to stretch lengthwise from the roads down to the valley bottoms (Fig.3). Such a plan would insure access, good upland coffee land, and a water supply for each prospective settler. Along with security of title, these characteristics were to be primary sales points for Company lands.

From the beginning, the purpose of the Company was to encourage small ownership, looking toward an integrated regional development such as could not result from the system of vast fazenda holdings characteristic of earlier times. Not only would the small farmers be less subject to the pernicious effects of a monocultural economy, but they would create a regional demand for the services of urban centers. While so dedicating itself to the interests of the small farmer, the Company did not plan to bar sales of fazenda size. However, it made no positive attempt to attract such buyers. The project itself places a control on the possible location of fazenda holdings; they must be outside a circumscribed orbit around the planned towns, and where the towns are placed so close to one another, this is a difficult condition for any sizable fazenda to meet. The whole rural-urban planning pattern, in brief, militates against the fazenda system. For this reason probably more than any other, there is today a marked paucity of large holdings in the area. Also, it must not be forgotten that during the period 1930-1940 few fazendeiros were buying new lands for planting.[6] When prosperous conditions returned after 1940, the fazendeiros were able to buy directly from the state, very cheaply and advantageously, lands on the peripheries of the Company holdings.

Besides the urban lots and the small farms, called chácaras,on the fringes of the towns, the Company lands were subdivided into rural sections called sítios, each averaging approximately 41 hectares. Urban nuclei (townsites) were to be located at intervals of 15 kilometers on the trunk highway along the major divide west from the Tibagí to the Ivai and on the roads radiating from it along the minor divides; the larger, planned regional centers were to be at intervals of 30 to 45 kilometers.

Such were the general objectives and the plan. It was necessary, of course, that development nad colonization proceed step by step westward in coordination with transport facilities. A general survey was made to furnish data on the relief, hydrography, and quality and nature of the soils; this in turn led to a demarcation into individual sectors of some 200,000 hectares, each destined for colonization at some future time. The sectors were to be developed as units - opened for land sale, roads constructed, urban facilities developed one by one as the railway advanced.

The decade of the thirties witnessed the development of only the eastern projection of the Company's lands, and even here it did not reach dramatic proportions. The generally unprosperous times brought on by world depression imposed their limitations. The decade of the thirties was simply a preparatory phase; it was during the forties that Lovat's project actually reached fruition. The arrival of the railroad at the projected site of Apucarana in 1943 marked the beginning of the phenomenal settlement characteristic of Northern Paraná today. With coffee prices increasing as a result of World War II, Brazil was experiencing another period of prosperity. Settlers arrived in great numbers, eager to buy land. No longer was it necessary for the Company to propagandize among Europeans, for the new masses of immigrants were largely Brazilians. Whereas in the early years Brazilian buyers came mostly from the neighboring state of Sao Paulo, increasing numbers now came from Minas Gerais. In addition, the Company's earlier colonization in the Londrina area resulted in a large market among the original settlers; some of them were buying lands farther to the west.

The British enterprise that had fostered this great expansion was not to share in its outcome. As early as 1939, the Brazilian government was making the position of foreign investments increasingly difficult. The railroad westward from Ourinhos was desired by the government as a link in the projected extension to the Paraguayan border. Wartime austerity programs in England did not help matters; British stockholders were finding it ever more difficult to obtain returns on their investments in Brazil, and the British government was urging liquidation of foreign assets in order to provide additional funds for the war effort.[7] The enterprise was finally sold in 1944 to a group of Sao Paulo bankers, who were later forced to sell the railroad to the federal government at a loss. Under Brazilian management, the Company (renamed Companhia Melhoramentos Norte do Paraná, or North Paraná Improvement Company) has, however, continued to function under the policies and methods laid down by its founders.

By 1953, the Company had begun to colonize its last remaining sector, the lands lying to the south on the left bank of the Ivai. Of the original area, embracing 1,246,300 hectares, only about 145,200 hectares remained to be sold - discounting areas for future towns, roads, and like facilities.[8] Up to that time there had been roughly 25,500 sales, testifying to the predominance of settlement by small proprietors. By 1950, there were 3000 kilometers of roads (fig. 4), and paving of the major arteries has continued steadily.

In the early days, when the Company opened its land around Londrina for settlement, prices were very low, well within the reach of the immigrant of modest means. Immigrants at that time paid only 400 cruzeiros per alquiere, or about $3.20 an acre.[9] Even at this price, the Company was making a profit on land it had bought from the state at 50 cents an acre. Land values have increased many times as improvements and transportation have been provided and the demand of new settlers has become ever greater. Also, there has naturally been an inflow of speculative money to the already settled urban areas. Nevertheless, lands sold by the Company in 1952 and 1953 still cost considerably less than their actual productive value in terms of present coffee prices. Though the Company has made no attempt to capitalize on soaring land values, the small farmer who buys today must be considerably more able financially than one who settled in Londrina 20 years ago.

Compared with the large-scale fazenda owner, the small farmer who has bought a lot from the Company is a man of modest means. After he has made the first payment on the lot, the sitiante is not likely to have much left. He must depend heavily on the sale of a cash crop, usually coffee, if his venture is to succeed. The fazendeiro may possess the necessary capital to provide himself with transportation, and indeed in former times prospered, despite isolation, by the use of mule trains. But the sitiante is utterly dependent on access to a road. The fazenda has the resources to be self-sufficient: installations for the processing of coffee, in every stage up to export, are provided on a progressive, up-to-date plantation. For the sitio, the processing must take place in towns nearby, where these activities are centralized. On the larger fazendas there are schools, chapels, commissaries, and all the varied services required by the workers. The sitiante must seek them in the towns. With meager capital, he depends on loans from banks to improve his land, to buy implements, fertilizers, and seeds. All the agencies of the large banking houses are located in the towns. Moreover, removed from the social community that the fazenda provides, the sitiante desires to be near some semblance of urban activity.

Thus the foundation of urban centers and the linking of these to their immediate rural hinterlands and to the outside have been the keystone of planned colonization in Northern Paraná. The Company wisely realized that for success both the incipient urban centers and roads must precede the actual sale of rural lots. A glance at the large-scale property maps of the North Paraná Land Company will show how carefully these requirements have been met (Fig. 3). Roads are built along the interstream divides, and practically all of the small farms have frontage on them. Passing along one of these roads, one might be deceived into thinking that he is in the midst of a tremendous coffee fazenda, because the trees are invariably planted on the upper slopes of the divide. But going down from the road into the valley, one finds beyond the coffee trees plots of other crops, such as corn, beans, or possibly upland rice. Finally, in the valley itself is the farmer's house, not far distant from that of his neighbor. No matter in which part of the Company lands he has chosen to settle, the farmer will never find himself removed by more than a few kilometers from the nearest town.

In the areas peripheral to the Company lands, the character of the transportation network quickly betrays the prevalence of large holdings. This is the fazenda country of Northern Paraná. The road network is markedly less dense than in the Company lands, and there is a notable paucity of smaller towns.

The urban centers of Northern Paraná show a differential state of development. Some have become regional centers; others are based simply on local relations, which hardly extend beyond the confines of the municipio; still others remain mere country villages, where the rural and urban aspects are

barely capable of separation. The factors that have influenced this differential development are the more interesting in that they generally are not traceable to the physical environment. Physical homogeneity is one of the marked characteristics of Northern Paraná; the soils are similar throughout there are no significant climatic differences, and the plateaulike topography extends without interruption over much of the region. The basic underlying factor in urban development has been the major transportation route, extending in a generally westerly direction from Cambará to Paranaváí. Southwest and west of Londrina, the line follows closely the main divides of the Tibagi, Pirapo, and Ivai Rivers.

With railroad construction and colonization activities colonization activities coordinated, the North Paraná Land Company planned its towns to serve both needs. They were located along the railroad (actual and projected) at intervals of 10-15 kilometers. They were to serve as siding points, wood- and water-supply stations, and repair centers for the railroad, and also to serve the needs of the surrounding country. East of Londrina, outside the Company domain the conception of the urban centers was not so deliberate. Here their location was determined in most cases by transportation considerations alone.

Some of the points along the railroad route held a greater advantage than others for future development. At certain of them the construction activities were based for a long period; they became, in effect, temporary railheads. With construction gangs quartered there, crude commercial enterprises were generated, and by the time the base moved on such a station had a substantial start toward uban development. Cambará, Bandeirantes, Cornelio Procópio, and Jataizinho were all railhead centers for a time Apucarana, within the Company lands, has had the greatest advantage in this respect, since it was the railhead for ten years. In January, 1954, the railroad was extended to Maringá.[10]

Another evident advantage lay with the point located at the eastern margin of land to be colonized - this is, Londrina. The Brazilian term for such a point is boca de sertao, literally "mouth of the unsettled land." As its name indicates, such a point has regional rather than local significance. Here are focused the railroad construction for a while and the activities of organized colonization for a longer time. As settlement of Company lands has proceeded westward during the boca de sertao. Most of the Company activities for example, the engineering sections and the sales offices - have been transferred there. But this did not happen before Londrina had become the regional capital of Northern Paraná. Maringá may someday eclipse Londrina, but the latter's importance is well established.

It is encouraging to note that decadence has not followed when towns have lost their roles as railheads and bocas de sertao. By that time, rural settlement has taken place in the vicinity, the need for market facilities has developed, and transportation routes have multiplied. The dispersion of rural holdings tends to make each town necessary, at least for its own immediate neighborhood.

Undoubtedly, the stability and planning characteristic of the colonization activities of the North Paraná Land Company have influenced the development of its towns by inspiring confidence. Such has not been the case outside the Company's domain, where smaller companies have intiated land sales and urban development. These ventures are primarily speculative: once the lands are sold, the development pattern is apt to be haphazard, dependent largely on chance.

As the first boca de sertao of the vast colonization of the North Paraná Land Company, Londrina became the focal point of economic activity in the early thirties. It has never lost this position and extends its influence into the peripheral areas as well as in the Company lands. It is a local market center, serving the needs of its own surrounding rural area. But more than this, it is the regional capital of Northern Paraná the hub of transportation lines, the site of numerous agricultural processing plants plants, agencies of coffee export firms, and branches of all major banking and credit establishments of southern Brazil.

In aspect, Londrina has progressed well past the "pioneer" state (Fig.7). This is especially true in the central commercial core of the city. The Avenida Paraná, which runs lengthwise along the summit of the divide, boasts several multistoried buildings. By 1952, new hotels and apartment houses had risen or were in the process of construction. The well-planned city contains a large central park, or praga, which is landscaped in its open part and includes a sizable patch of partly incleared woodland. The latter provides a welcome esthetic feature; many of the towns of the region suffer from a lack of shade trees, paradoxical though this may seem in an area once abundantly forested. The main thoroughfare and several of the better residential streets are now paved, lighted, and lined with young planted trees. It is difficult to realize that only 25 years ago Londrina was an amorphous place with a few wooden cabins strung at intervals along dirt roads.

In the Maringa of 1952 one could see the first stages of urban development. It represented the aspects and functions of the typical "pioneer" town on the Sao Paulo Northern Parana frontier, and in it one could picture the Londrina of 20 years ago. But there was more; for Maringa was planned on a much larger scale than any of the other towns. As the geographical center of the Company lands, it was always destined to be the show place of Northern Parana. It became boca de sertao, railhead, and boom town.

If Maringa was rustic, it was so on a grand scale. Wide, divided boulevards, then unpaved but well graded, opened at intervals into great circular pracas (Fig. 8). There were no concrete sidewalks. The pracas were bare of trees or grass, but they were boldly marked for example, "Praca Independencia." If one were to encounter such a magnificently planned network of boulevards and parks on the verge of the wilderness anywhere else in Brazil, he would think it excessive. But in Maringa settlement and commercial enterprise kept pace with the grandiose plan. There was confidence in the North Parana Land Company, bolstered by the example of Londrina. Well aware of the psychological make-up of the modern-style Brazilian pioneer, the Company has also been confident of Maringa's ultimate success. The outward mainfestations of urbanization, even in such a rudimentary state, are attractive to the settler who does not wish to be reminded that he is far from Rio de Janeiro and Sao Paulo. "Progress" is a magic word in Brazil, and often only the a priori semblance is necessary to provide initial momentum in any urban development scheme, notwithstanding the character of the geographical base.

Both sides of the main boulevard, a mile or so in extent, were lined with crude one-story shops and buildings (Fig. 8), and at the far end the view faded away against a haze of reddish dust. There were no street lamps as yet; developed electric power was sufficient only to furnish a dim light to the buildings, and the unhabitants used flashlights to guide themselves at night along the rough earthen sidewalks. This was Maringa seen in 1952. But the growth of the town has been so rapid that statistics cease to have meaning from one month to the next.

Only three years after its founding in 1947 the population was 7389 persons, sufficient to qualify Maringa as an autonomous municipio. By November, 1952, only a few urban lots remained to be sold. Though replete with cabin dwellings, the town's only impressive edifices in that year were the hotel and the office building of the North Parana Land Company. The remainder of the commercial core was made up of numerous drygoods and hardware shops, selling all sorts of household and agricultural wares food, clothing, tools, small plows, winnowing nets, insecticides, and a score of other things. This is the type of ubiquitous establishment that first makes its appearance in the newly settled frontier town; it has virtually disappeared from the streets of Londrina.

Maringa in 1956 already is different: the transition from the pioneer aspect has been more rapid than was the case in Londrina. Now there are many paved streets, well illuminated and lined by rows of planted trees; many of the temporary wooden buildings have been replaced by multistoried concrete edifices some of which are well-appinted hotels. That such changes have taken place within four years reflects the peculiar dynamism of Northern Parana.

The fact that Northern Parana's agriculture has come to be based on a combination of crops enjoying wide demand outside the region, in domestic as well as in foreign markets, has resulted in well-established external relations. The timeliness of development with respect to outside market conditions has been a vital factor witness the increased exports of coffee during the postwar period; the reorientation of a large part of United States imports from the old production centers of Sao Paulo to the new one of Parana; and the much-expanded domestic market for rice, beans, maize, cotton, and sugar (all supplementary crops in Northern Parana) deriving from increasing urbanization within Brazil itself.

The development of adjacent areas is also being stimulated. The effort of the state government to absorb the northern region into its economic framework by the diversion of commerce southward is not merely a matter of state pride. It stems from the knowledge that other parts of the state for instance, the port of Paranagua, the capital of Curitiba, and the vast expanse of undeveloped land between will benefit indirectly by the shipment of Northern Parana's goods and by the construction and improvement of connecting lines of communication. The whole state stands to gain by the development of the nothern region, and unlike Sao Paulo, Parana is still an underdeveloped state.

There is no doubt that Northern Parana stands today as an encouraging example of rational economic development, well integrated in the total Brazilian economy. But what of the future? Will it be able to sustain itself in contrast to many areas of Brazil which have flourished for a time and then lapsed into a static or declining economy? This will depend mainly on how zealously its resources are conserved. The Paranaense call the terra roza of the north nossa maior riqueza, our greatest wealth. This is no exaggeration

Table 1 Coffee Exports from Sao Paulo, Parana, and Brazil, 1935-1953*
(In bags of 60 kilograms)

Year	Sao Paulo	Parana	Brazil
1935/36	13,522,000	613,000	20,927,000
1940/41	10,217,200	931,500	16,455,800
1945/46	6,100,600	673,800	12,700,500
1950/51	8,121,300	4,030,800	16,762,500
1952/53	7,056,650	4,947,120	14,925,820

*Data from Seccao de Fiscalizacao e Estatistica do Instituto Brasileiro do Cafe.

There is evidence in Northern Parana of a new appreciation of the need for efficient soils management. Much was learned from the consequences of improverished and eroded soils in the neighboring state, and it is not likely that the initially productive soils in this new pioneer zone will see such carelessness on the part of man. Although the individual sitiante may not have all the means at his disposal to practice the best conservation techniques. the North Parana Improvement Company shows likelihood of becoming the guardian of the riches of the lands it has developed. Now, having finished most of its selling and road-building activities, the Company's interest has turned increasingly to matters of conservation.

The basis of the agriculture is bound to remain coffee. With coffee production declining steadily in other parts of Brazil (there are estimated to be half a billion fewer trees in the country than there were 20 years ago)[11] and a rising demand, it is left to Northern Parana to compensate for the deficit. This is probably one of the few remaining areas of the country where physical conditions are especially suitable for large-scale coffee production, and the relative infrequency of damaging frosts seems to justify a calculated risk. The westward extension of coffee growing from Sao Paulo has almost reached its physical limit at the Parana River. In Mato Grosso the natural grassland soils are not suited to the degree of coffee cultivation thus far attained in Sao Paulo and Parana.[12] The increasingly significant role of the state of Parana in Brazilian coffee production, following the recent development of its northern region, is shown in Table I.

Hagen, Everett E. The economic development of Burma. Washington, National Planning Association, 1956. 88pp., map, tables. (Planning Pamphlet no. 96.) Humid

Concerned with the history of Burma's postwar development, the pamphlet describes methods and success to date, problems still facing the country, and the kind of economic aid which will best serve the interest of Burma and which it will be to the interest of the United States to advance.

After Burma regained her independence in 1938, measures were instituted to strengthen her economic base, namely agriculture. The pamphlet outlines regulations for land refrom, together with comments on thier success:

"One of the first acts of the new government was enactment of a series of measures designed to restore the security of land tenure which had prevailed in pre-British days. In a sense there are the most basic of the measures aimed at the revival of village life, but they have other far-reaching implications as well. One of the motivations for their hurried enactment was to prevent the leftist leaders who advocated land redistribution without compensations from gaining popular support.

The first of these measures was establishment of a ceiling on land rents at a level well below their absolute prewar level, which had been regarded as exorbitant. In part, such a level was chosen as the ceiling in the expectation that the inflated postwar price level was an abnormal and temporary thing, and that prices in general would presently return to their "normal" prewar level. Since the price level has remained and will remain at between four and five times the prewar level, the result has been to confiscate perhaps nine-tenths of land value.

A companion act provided for limitations of the size of land holdings (to 25 and 50 acres respectiviely in different sets of circumstances), and for government purchase and redistribution of acreage in excess of these limits. Payment is in bonds which are to be redeemed gradually. Since the computation is calculated at a normal multiple of rents, it carries out the degree of confiscation implicit in the statutory rent ceilings.

Land rents had been high because of the intense desire to operate farms and of course some type of land rationing had to accompany the low rents. The act provided for creation of local land allocation committees. They are to carry out the moderate degree of redistribution implicit in the size limitation, and to administer land tenure thereafter. The act started the principle of continued tenure for efficient renters after land nationalization. The continuing function of the committee will in principle be to reallocate lands not efficiently cultivated.

These measures, thought applicable to all of Burma, were designed primarily for the rice area of Lower Burma, where the insecurity of land tenure had been extreme. In considerable areas of Upper Burma, as recently as 1953 the existence of rent ceilings was not known and not observed.

The insurrection. plus legal difficulties, delayed execution of these measures. Apart from an experimental redistribution of 25,000 acres in 1949-50, only in 1954 did land redistribution begin to be carried out, area by area. By the end of May 1955, a total of 605,000 acres between three and four percent of the land now under cultivation had been nationalized and redistributed.

Obviously, the success of the land reform program will require the application of very high ethical standards by the local land redistribution committees. There is some evidence that the early actions of some of them have not met such standards.

The attempt to create by law institutions of land ownership which for their success must depend on a deep seated social sanction is a precarious one. It should be looked on sympathetically. The strength of the urge for land ownership and operation which exists in the Burmese culture is so great that it is sure to result in insupportably high rents, insupportably high mortgages and disruptive insecurity and instability of land tenure, unless some measure drastically limiting the play of market forces is in effect."

Architectural design, May 1955, vol. 25:5.

A special number on the work of Fry, Drew and Partners, and Fry, Drew, Drake and Lasdun in West Africa. Well illustrated with many photos., maps and plans. The editorial preface follows:

"In November last, in collaboration with Messrs. Fry, Drew, Drake and Lasdun (architects), Messrs. Ove Arup and Partners (engineers) and Messrs. Widnell and Trollope (quantity surveyors), we sent the photographer, Mr. Richard Lannoy, on a trip to Nigeria and the Gold Coast to photograph specially for us the architectural work there of Messrs, Fry, Drew, Drake and Lasdun. Maxwell Fry and Jane Drew were the first European architects to start work after the war on a large educational building programme in West Africa, a programme which has been steadily expanding even since, culminating in the vast Ibadan University campus already half completed and occupied. Over the period, the architects have developed a style which, while fulfilling all the functional requirements of an exacting climate, is yet flexible enough for the creation of dramatic and exciting architectural ensembles.

Many new technical problems confront the architect in the tropics. Mr. Maxwell Fry and his partners have had long experience of the two main types of climate the hot dry and the warm humid both in India and in Africa. The buildings which we show in this issue all lie in a <u>warm humid area</u> which produces its own variety of problems; Miss Jane Drew outlines these in the introductory article below.

Most important of the buildings is undoubtedly the group comprising Ibadan University:

<u>introduction</u>: Jane B. Drew:

The West African coast stretches for about 2,000 miles on the 5° latitude, north of the Equator. Of the four British West African colonies Nigeria, Gold Coast, Sierra Leone and Gambia Nigeria, now our largest colony, has a population of over 22 million and is about the size of France; Gold Coast is half this size and has a population of 4 million; Sierra Leone is about half this size again, and Gambia is the size of an English borough.

This coast is surf-fringed and swamp lined. Behind its mangrove swamps comes the high forest which for centuries has sealed it tribal inmates off from the rest of mankind; and behind the high forest comes the savannah, or scrub area, finally fading into desert.

The climatic conditions vary from hot dry to hot humid: the architecture shown in this number being entirely for the hot humid area. Here the shade temperature is usually from 85° to 90°, often combined with a 90° humidity, and the rainfall is usually over 80 in. a year, coming sometimes with thunder and lightning, in two wet seasons, but chiefly in the main wet season from June to October. The sky is often overcast, but even then the glare is considerable; shade and breeze are the great ameliorating factors, making life a little more comfortable by reducing the temperature of man's skin.

The ecology of this coast is one of tribal life-tribes speaking some forty different tribal languages, and some of the finest African art has come from here; mostly scupltural and religious in character. Is is notable for its rhythmic form and powerful magical appeal, an appeal which it is not necessary to be an art historian or a psychologist to understand. One has only to sleep in a village on a moonlit night in the high forest, listening to the drums, to realize the appropriateness of the sculpture to the setting. The history of these people is not entirely known it was only latterly influenced by Europeans who came to the coast to trade, originally in gold, ivory, and later in slaves; now in cocoa, oil and other goods. Missionaries came to the coast early and established centres of learning; these and trading together led to prosperity.

The passing in the recent war of the two Colonial Welfare Development Acts provided a total of £ 120,000,000 for a ten-year development programme. These C.W.D. Acts, as they are known, enabled the colonies to plan, among other things, a great educational programme, and it happened that at this time the Director of Education in the Gold Coast was that outstanding man, Thomas Barton, who considered that the architecture formed an integral part of the education and that this education should be as forward-looking as possible. He wisely decided to leave the dissemination of the education in the hands of those who were already administering it namely, the missionaries and thus in the early training colleges and schools built under his aegis it came about that the school chapel was an important feature.

The contractual background of the coast was one of individual contractors; good men from England, Switzerland and Italy, who worked for a contract price for the earlier buildings, without quantities or close specification. They employed direct labour and little machinery. The cost of labour was so low that machines such as stone crushers were hardly justified and stone was crushed by African women using hand tools. The undertaking of such a big programme was the occasion for the introduction of more exact methods of costing and building. Quantity surveyors' bills and engineers' drawings and schedules, as well as architects' complete sets of detail drawings, were introduced, so that when buildings were sent for pricing this could be done more accurately, and so that the quality of the building was exactly defined. So far as we are concerned, the quantity surveyors, Messrs, Widnell & Trollope, and the engineers, Messrs. Ove Arup & Partners, sent out their complete details with ours for prices to be obtained, and thereafter assisted in supervision and checking the cost and quality of the work. Nowadays, rising wages are bringing increasing mechanization to the works, although building costs have not risen proportionatley to other commodities, perhaps because of mechanization. Building at present costs between 3_s and 3_s 6d. per cubic foot unless lifts and imported mechanical equipment are included, when it may rise as high as 5_s 6d. a cubic foot. The school plans and, indeed, many house plans in the tropics are designed so that as far as possible a through breeze is obtained and contours are followed (scouring and erosion are great tropical troubles and buildings frequently have to be protected at ground level by a concrete apron); and lastly, if possible, paying attention to other requirements, so that the building faces north with its long side, the east and west being the most difficult to shade.

The water off the roof is often collected and the construction had to be such that the walls are shaded and do not transfer heat during the night to the interior, and the roof such as to reflect heat and likewise not transfer it to the interior. It is the most vulnerable of the exposed surfaces and therefore a double roof facing the breeze with a ventilated cavity is often used. The roof material is usually asbestos or aluminium - cheap and relatively satisfactory materials. Concrete roofs, which present a problem even in temperate climates, are here complicated by the heat, temperature variations and the difficulties of laying with unskilled labour. Roofs, too, have to reflect heat to lower temperatures, within the building. After much research, a satisfactory bituminous material was evolved by Messrs. Evode Ltd., which is now used throughout the region. Walls are usually of sandcrete block termites preclude the lavish use of timber.

The schools have been designed so that they give some feeling of security and social cohesion. They are deliberately geometric and orderly because such a statement is required against the extreme disorder of the luxuriant forest where the forms of the trees are so jumbled up.

The residential and teaching areas are generally grouped apart with the administrative section and assembly hall as a nodule. The chapel in generally in a place made significant by the grouping of the buildings, but is seldom central. The assembly hall is sometimes used by the community, as well as the school, and in this case we have placed it rear the main approach.

The particular architectural character comes not only from the mono-pitch roof and long low blocks essential to a country where lifts are expensive, but from the sunbreakers, grilles and other shading but breeze permitting devices. In some cases, particularly in blocks and balcony details, an attempt has been made to design in a way which, without in any sense copying African detail, gives a response which is Africa; the sunshine and moisture and heavy overcast sky and feeling of oppressive lethargy seem to call forth moulded forms which are rhythmical and strong, not spiky and elegant, but bold and sculptural. The west can really only bring western concepts, but the western man designing in Africa, and for Africa, is bound to be affected not only by climatic but psychological factors. We have made considerable use of colon which is definite and strong, combined with grey or white and natural wood and stone. Terra cotta, yellow, brown, red and blue are colours we have used, mostly in the shadows, where the sun will not affect it. Blue is often used beneath eaves and projections and on sidings to mute glare. The stong blue of the sky, the black green of the foliage and terra cotta of the earth make pale colours seem insipid.Our structures are generally in concrete frame or sandcrete block. We have endeavoured not to mix these as weight-bearing methods, since unequal settlement causes cracking. We have used little wood structurally because of termites, and we have used insect proofing where essential, but not generally, since most people prefer the annoyance of insects to the annoyance of meat-safe-cum-newsprint views obtained by screening

The form of living is as yet evolving, and that rapidly, to a loose westernard pattern, perhaps more like that of California than Europe.

29

W.

Rain
30-50"

Colot, Louis. The struggle against insanitary dwellings in Venezuela. (International Federation for Housing and Town Planning. News sheet, May 1956, no. 90, pp. 3-8)

Text in French.

The author, who is ambassador from Belgium to Caracas, has made a comprehensive survey of the problem of slums in Venezuela.

Periodic censuses are taken in Venezuela to discover insanitary dwellings; the last was made in 1950. The political agency responsible for slum clearance is the Banco Obrero which is empowered to expropriate and demolish systematically quarters of huts, cabins and other unhealthy lodgings, and to construct, sell, and to locate cheap, healthy dwellings intended for workers and the poorer classes.

The Banco Obrero has devised its own system or discovernig and recording the number of slums according to a formula that includes not only material aspects, but social and human sides of the problem. It has counted 53,360 huts and insanitary dwellings in the capital of the country.

While the Ministére de la Santé et de l'Assistance Sociale can apply sanitary regulations, the Banco Obrero is charged with remedying the situation by constructing modern cheap dwellings.

The Ministère is sole judge of the need for evacuating or demolishing a dwelling for reasons of public hygiene. Overcrowding is a severe offence. Construction of all buildings whatsoever is strictly regulated by the law of public hygiene.

In the following account of technical procedure followed by the Banco Obrero, costs are given in bolivars; one bolivar equals 30 cents in U.S. currence.

"Pour ce qui le concerne, le Banco Obrero fait procéder pas ses experts à évaluation des propriétés a expropier sur base d'un formulaire ad hoc qui tient compte d' éléments tels que la superficie du terrain et la qualité des materiaux. A valoir sur le montant ainsi fixé, le propriétaire est indemnisé à concurrence de 5,000 bolivars, en

p.t.o.

numéraire et pour le reste, s'il y a lieu, en bons hypothécaires du Banco Obrero et obtient en outre une option d'occupation sur un appartement adéquat.

Quant au risque de spéculation immobilière, il est pratiquement inexistant en l'occurrence en ce sens qu'en matière d'expropriation, la loi en vigueur dispose que les trois quarts de la plus-value reviennent de plein droit aux pouvoirs publics.

Relogement des personnes évacuées des quartiers insalubres

En ce qui concerne le relogement des occupants des habitations insalubres évacuées ou éliminées sur ordre des autorités compétentes, il y a lieu de distinguer. En principe, il n'entre pas dans les attributions du Ministère de la Santé et de l'Assistance Sociale de pourvoir systématiquement au relogement des personnes affectées par ces mesures. Il ne s'occupe d'ailleurs que des cas individuels relevant de sa compétence en matière préventive et répressive. Dans ce cadre, il se borne donc à parer aux infractions à la loi et surtout, à empêcher la construction de nouvelles habitations insalubres, quitte à laisser au Banco Obrero, qui est l'instrument spécialement créé à cet effet, le soin de pourvoir à la solution positive du problème à l'échelle nationale, notamment en ce qui concerne les centres urbains.

C'est donc à ce dernier organisme qu'il appartient en propre de procurer des logements décents et bon marché à la population des zones insalubres supprimées par ordre du Gouvernement. A cet égard, la politique suivie consiste invariablement à faire précéder l'élimination des zones insalubres par la construction de nouveaux immeubles suffisants pour héberger la population à évacuer dans chaque cas.

En matière de relogement le Gouvernement vénézuélien agit d'autorité. Ce faisant, il s'inspire des nécessités inhérentes à la fois au bien général et à l'intérêt particulier des individus réinstallés sur le plan moral et matériel. L'autorité compétente veille à construire les nouvelles habitations destinées à les héberger sur l'emplacement ou à proximité des anciennes zones insalubres de manière à ne pas les éloigner de leur lieu de travail et de leur environnement familier. Dans le même esprit, elle fait en sorte de doter les nouveaux quartiers résidentiels populaires d'installations de caractère social et éducatif telles qu'écoles, dispensaires, centres récréatifs, plaines de jeux, zones de verdure et centres commerciaux. Les occupants y sont d'ailleurs soumis à une discipline adéquate et à une rééducation systématique assurées par les soins des agents du service d'assistance du Banco Obrero en collaboration avec les assistances et monitrices sociales des institutions religieuses et laïques de relèvement moral et social. La tâche est de longue haleine. Aussi bien il s'agit de développer chez les réinstallés, à peine arrachés à la promiscuité et à l'existence primitive des quartiers de taudis, le sens de la propreté, l'habitude de l'hygiène, le respect de la propriété publique, la pratique du bon voisinage, la connaissance des techniques ménagères, bref, l'art de vivre dans le cadre humain et physique d'une habitation moderne. Peu à peu, cette politique, qui est poursuivie énergiquement, commence à porter ses fruits. Les intéressés eux-mêmes, qui parfois s'étaient montrés réticents au début, se rendent compte maintenant des bienfaits des conditions de vie améliorées qui leur sont offertes dans les appartements neufs mis à leur disposition. Et l'on espère ainsi que l'assainissement progressif du logement populaire ne tardera pas à avoir corollaire une réforme salutaire des mœurs et une élévation du niveau général du peuple.

Autorité consultative en matière de politique du logement

Le Banco Obrero est à la fois l'organe consultatif et l'organe exécutif du Gouvernement vénézuélien en matière de politique du logement. Cependant, du point de vue de l'esthétique architecturale, c'est la Commission de l'Urbanisme qui est compétente et qui à ce titre, est appelée à donner des avis. De même, il va de soi que pour tout ce qui concerne les questions relatives à la voirie, à la distribution d'eau, à la construction d'écoles, à la mise à la disposition du Banco Obrero des terrains municipaux nécessaires et autres, les différentes autorités compétentes sont consultées également chacune dans leur domaine particulier.

Le financement de la politique du Gouvernement vénézuélien en matière de logements populaires

Le financement des activités incombant au Banco Obrero en matière d'assainissement du logement populaire est assuré tout d'abord, dans une certaine mesure, par les ressources propres de cet organisme qui en tant qu'institut parastatal jouit de l'autonomie financière et ensuite, par les importants crédits que l'Etat met à sa disposition pour pourvoir à la réalisation des étapes successives du Plan National du logement d'une part, et du Plan Spécial d'assainissement des zones insalubres de la capitale d'autre part.

Les ressources propres du Banco Obrero comportent les revenus provenant de ses activités bancaires et immobilières en général, à savoir notamment, le produit de la vente et de la location des immeubles construits par lui, les disponibilités que lui procurent ses émissions statutaires d'obligations hypothécaires, le remboursement des prêts qu'il accorde pour la construction d'habitations à bon marché, etc.

Quant aux subsides de l'Etat qui constituent la principale source de financement du Banco Obrero, ils sont, comme nous venons de le dire, de deux ordres: les uns, de caractère ordinaire, pour le financement du dernier Plan National du logement en cours d'exécution depuis quatre ans et les autres, de caractère extraordinaire, pour le financement du Plan Spécial d'assainissement des zones insalubres de la capitale décrété par le Président de la République dans le cadre de son Programme Extraordinaire de grands travaux le 31 décembre 1953.

Au cours des derniers exercices financiers, le Banco Obrero a émargé régulièrement à valoir sur le budget ordinaire du Ministère des Travaux Publics, pour un subside annuel de 30 millions de bolivars, soit 450 millions de francs belges pour le financement de ses activités. Dans le cadre du programme extraordinaire de grands travaux dont il vient d'être question, des crédits considérables ont été affectés à la réalisation du plan de suppression progressive des quartiers insalubres de Caracas. Rien qu'au cours de l'année 1954, un investissement de l'ordre de 122 millions de bolivars, soit près de deux milliards de nos francs, a été consacré à cette tâche. Nous en reparlerons plus loin.

En principe, les propriétaires de logements insalubres sont indemnisés sur la base qui a été indiquée à l'avant-dernier paragraphe du chapitre V de la présente étude.

Cependant, sur le plan général, le Banco Obrero est habilité conformément aux dispositions du règlement interne régissant son activité en cette matière pour effectuer les opérations de crédit immobilier suivantes en faveur des personnes qui réunissent les conditions requises:

1) accorder des crédits jusqu'à concurrence d'un montant de 30.000 bolivars pour la construction d'une habitation à bon marché sur le terrain appartenant au bénéficiaire du prêt;

2) accorder des crédits jusqu'à concurrence de la même somme pour achever, dans les cas d'urgence ou de nécessité établie, la construction d'une habitation à bon marché appartenant au bénéficiaire du prêt;

3) accorder des crédits jusqu'à concurrence du même montant pour exécuter des travaux de réparation à l'habitation appartenant au bénéficiaire du prêt;

4) vendre au comptant ou à temps ou donner à bail purement ou simplement ou avec option d'achat une maison destinée à l'usage exclusif du bénéficiaire moyennant versement lorsqu'il y a lieu, d'un acompte initial de 5 à 20 % dans le cas où la valeur de l'immeuble n'excède pas 15.000 bolivars et de 10 à 30 % lorsque cette valeur est supérieure à ce montant. L'intérêt perçu sera de 4 à 6 % par an dans le premier cas et de 5 à 7 % dans le second. Ces taux sont sensiblement inférieurs à ceux du marché ordinaire des hypothèques sachant que ces derniers s'élèvent à 12 % par an au moins. En principe, les prêts ainsi consentis le sont pour un terme qui ne peut pas dépasser 15 ans.

Quant aux loyers, ils sont calculés en fonction des ressources des différentes couches de locataires et de la valeur du logement loué. En général, ils sont fixés à 7 ou 8 % sur la valeur de l'immeuble selon que celle-ci est ou non inférieure à 15.000 bolivars, ce qui représente un rabais de 5 % en moyenne au moins sur les taux du marché ordinaire des loyers au Venezuela. En fait, les loyers perçus pour les appartements loués par le Banco Obrero varient de 45 à 110 bolivars par mois.

Enfin, moyennant l'autorisation préalable du Gouvernement, le Banco Obrero peut aussi accorder des prêts sans limitation de montant, aux organismes ou entreprises qui s'occupent de la construction de logements à bon marché à des fins d'intérêt social et sans but lucratif.

Exonérations fiscales

Dans le déploiement de ces activités statutaires, le Banco Obrero jouit d'importantes exonérations d'ordre fiscal. Pour ses importations de matériaux de construction nécessaires à l'exécution des travaux lui incombant, il bénéficie de la franchise douanière intégrale. Il est exempt de tout impôt ou contribution sur les bénéfices et sur l'émission ou l'amortissement des obligations hypothécaires émises par lui ainsi que de tous droits fiscaux relatifs à ses activités en tant qu'établissement de crédit. Il jouit de la franchise postale et télégraphique. Les immeubles lui appartenant sont libres de tous impôts. Les actes judiciaires et extra-judiciaires où il intervient ainsi que les contrats de location pure et simple ou avec option d'achat conclus par lui sont exonérés du paiement de l'impôt sur le papier timbré et des droits de timbre en général. La même exonération sera appliquée aux autres actes, contrats et transactions passés au profit du Banco Obrero.

Ces immunités en matière fiscale permettent évidemment au Banco Obrero d'alléger dans une mesure correspondante ses charges d'exploitation et d'administration et de réduire d'autant le coût de ses prestations de toute nature sur le plan des activités en matière immobilière et hypothécaire.

Quant aux particuliers, ils ne jouissent comme tels d'aucune exonération fiscale en matière de construction immobilière. Mais, s'ils réunissent les conditions requises, ils sont admis à solliciter le bénéfice des avantages inhérents aux interventions légales du Banco Obrero en matière de construction et de location d'habitations à bon marché et d'octroi de prêts immobiliers.

Statistiques et conclusions

Le problème du logement revêt au Venezuela une ampleur considérable et ce, en raison de divers facteurs inhérents à la condition matérielle et sociale des masses populaires et surtout, à la poussée démographique et migratoire accrue à laquelle on assiste ici depuis plusieurs années.

Les dernières données disponibles quant à la situation prévalant dans le pays à cet égard, sont celles qui résultent du recensement général de 1950. On a dénombré alors pour l'ensemble du territoire national, un total de 875.704 logements qui du point de vue qui nous occupe, se répartissent comme suit:

Type du logement			*Habitations avec eau courante*	
	Unités	*Occupants*	*Unités*	*Occupants*
Total général	875.704	4.674.332	264.440	1.450.598
Ranchos (huttes insalubres)	408.803	2.142.625	24.393	127.037
Maisons ou villas	428.333	2.368.020	217.802	1.233.461
Appartements d'immeubles ou de maisons	28.048	113.781	22.093	89.205
Habitations non déterminées	10.520	49.906	152	895

Certes, ces chiffres qui ont déjà cinq ans d'âge, sont dépassés dans une certaine mesure par la réalité présente. Mais il est intéressant pour se rendre compte de l'évolution du problème de les comparer aux résultats du recensement général de 1941 à cet égard. Les voici:

668.782 logements recensés dont:

406.460 ou 60,8 % cases.
429.308 ou 64,2 % avec toit de chaume.
468.790 ou 70 % avec sol en terre battue.
70.550 ou 10,5 % avec W.C.
88.789 ou 13,5 % avec latrine.
488.713 ou 73,1 % avec fosse d'aisances.
20.700 ou 3,1 % sans renseignements à cet égard.
105.296 ou 15,7 % avec eau courante.
60.255 ou 9 % utilisant des poubelles à couvercle à immondices.

Comme on le verra, alors que le nombre d'habitations a augmenté depuis lors de 668.782 à 875.604 unités, celui des ranchos ou cabanes insalubres n'a augmenté que de 406.460 à 408.803, c'est-à-dire, dans une proportion beaucoup moindre. Il s'ensuit donc que la majeure partie des nouvelles habitations construites dans l'intervalle appartiennent à la catégorie des maisons, villas et appartements dont les caractéristiques sanitaires répondent aux critères de salubrité établis par les lois et règlements en vigueur. De même, le nombre d'habitations pourvues d'un système de distribution d'eau courante a passé de 105.296 à 264.440. Les progrès sont donc incontestables.

Néanmoins, le problème continue à se poser avec une acuité particulière dans les grands centres urbains, et à Caracas en particulier, sous le coup de l'augmentation accélérée du chiffre de la population par suite de l'immigration étrangère, de la natalité en progrès constant grâce au développement de l'hygiène générale et enfin, de l'exode des campagnes. Pour illustrer cet aspect spécial de la question, qu'il suffise de mettre en relief que la population urbaine totale du Venezuela, qui s'élevait à 1.117.798 individus en 1941, atteignait neuf ans plus tard, lors du recensement de 1950, 2.567.833 unités, ce qui représente un accroissement de plus du double, soit exactement 118%.

Pour pourvoir au logement de cette population supplémentaire de 1.391.135 âmes équivalent à raison de 6 personnes par famille, à 232.000 familles, il eut fallu pouvoir disposer d'un nombre d'habitations égal à ce dernier chiffre, c'est-à-dire, construire 25.800 habitations par an.

Comme malgré les progrès importants intervenus, on reste encore en dessous de ce chiffre, ce développement a eu pour conséquence dans la capitale en particulier–dont la population s'est accrue de 269.030 habitants en 1941 à plus de 695.000 en 1953 pour dépasser le million actuellement–une véritable prolifération des logements de fortune au cours de la période sous considération. D'après le recensement effectué par le Banco Obrero, le nombre de logements insalubres, c'est-à-dire, de huttes, masures, cabanes et cases, a passé pour la ville de Caracas de 7.776 en 1941 à 20.953 en 1950 et 53.616 en 1953. Ces 53.616 logements insalubres servent actuellement de gîte à 310.972 personnes exactement.

Telles sont les données du problème. Elles montrent à suffisance l'ampleur de la tâche qui s'offre encore à la sollicitude des pouvoirs publics s'ils veulent y porter adéquatement remède. Mais il est juste de souligner à cet endroit que le Gouvernement présidé par le Général Marcos Perez Jimenez actuellement au pouvoir a pleinement compris l'étendue des responsabilités qui lui incombent à cet égard. Il s'est attaqué au mal avec une énergie et un dynamisme dignes d'être mis en relief. Grâce à l'effort soutenu et audacieux qu'il déploie dans ce domaine, la situation va en s'améliorant de jour en jour à un rythme sans précédent. On se rendra compte des résultats obtenus sous ce rapport à la lumière des données qui vont suivre. Voici tout d'abord quel fut au cours de la période qui s'étend de 1929 à 1954 y compris, le nombre total de logements populaires construits à l'initiative des pouvoirs publics:

Villes	*Maisons*	*Appartements*
Caracas	3.688	12.192
Maracaïbo	1.344	120
Barquisimeto	1.107	—
Puerto Cabello	766	—
Carúpano	722	—
Valencia	714	—
Autres villes	3.287	452
Totaux:	11.628	12.764

Au cours des vingt-cinq années écoulées, il a donc été construit en tout 24.392 logements populaires au Vénézuéla dont 19.649 datent de la période qui va de 1948 à 1954 y compris, c'est-à-dire, de l'accession au pouvoir de la Junte Militaire dont est issu le Gouvernement actuel, jusqu'à nos jours. Rien qu'en 1954, il a été construit au titre du Plan Extraordinaire de suppression des zones insalubres de la capitale, une série d'immeubles à étages multiples comportant en tout 6.231 appartements et à celui du Plan Ordinaire du logement, 1.302 appartements et 770 maisons dans les principales villes du pays.

Il est à noter que ces chiffres ne comprennent pas l'activité de l'initiative privée en matière de construction immobilière, qui ainsi qu'il ressort des statistiques reprises ci-contre, revêt une importance considérable et qui par le fait même a grandement contribué à l'élimination des quartiers désuets des centres urbains.

Mais ce n'est là qu'une étape. L'action d'assainissement du logement au Vénézuéla se poursuit et s'amplifie encore sous l'impulsion du Gouvernement. Les projets d'avenir dont la réalisation a d'ailleurs déjà été entamée, sont vraiment prestigieux. Les solutions appliquées sont radicales et expéditives. Comme nous l'avons dit plus haut, en ce qui concerne Caracas en particulier, le Général Marcos Pérez Jimenez, Président de la République, a décrété le 31 décembre 1953 dans le cadre de son programme extraordinaire de grands travaux, la réalisation d'un plan de caractère spécial échelonné sur plusieurs années, visant à la suppression intégrale des quartiers insalubres de la ville. En vertu de cette décision, il est prévu que ceux-ci seront rasés l'un après l'autre et remplacés au fur et à mesure de leur élimination, par des zones résidentielles réservées aux classes populaires, dotées de vastes immeubles d'habitation à étages multiples du modèle de ceux qui figurent sur les photos reproduites ci-contre. Il s'agit donc d'expurger la ville des 53.616 logements insalubres recensés par le Banco Obrero et de pourvoir de manière concomitante au relogement des 311.000 personnes qui les occupent actuellement. A valoir sur ce plan, 9.000 cabanes ont déjà été démolies et leurs occupants, au nombre de 30.000 environ, réinstallés dans les 6.231 appartements construits à cet effet au cours de l'année 1954.

A la fin de l'année qui vient de s'achever, 14 superblocs et 17 blocs construits en divers points de la capitale et comportant ensemble 2.100 et 554 appartements respectivement, ont été inaugurés et mis en service aussitôt, ce qui a permis la suppression d'une tranche correspondante de logements insalubres et le relogement concomitant de leurs occupants. De même à La Guaira, port de Caracas, 4 blocs avec 550 appartements ont été terminés à la même date. Ces réalisations s'ajoutent à celles qui s'inscrivent dans le cadre du plan ordinaire du logement et qui comprenaient pour 1955, 456 habitations à Puerto La Cruz, 160 appartements à Petare, 273 maisons à San Cristobal et 463 appartements et 13 maisons à Caracas.

Pour caractériser la politique d'avenir du Gouvernement venezuelien en cette matière, on ne peut mieux faire que de citer les déclarations que le General Marcos Perez

Jimenez lui-meme a formulées récemment à ce sujet. "Le Gouvernement", disait-il, "a la satisfaction de s'être attaqué vigoureusement à la tache qui consiste à liquider le lamentable état de choses existant dans ce domaine selon un plan aussi audacieux que systematique. Les masses architectoniques des superblocs residentiels commencent deja à remplacer les agglomerations de cabanes miserables accrochées aux flancs des collines de la capitale ou la pauvreté s'etale dans l'ambiance asociale d'une promiscuité indigne de la personnalité humaine. Par la démolition des ranchos, symbole d'um Venezuela arrière et anarchique, nous transformerons une fois pour toutes le sens et les dimensions de l'existence de nos compatriotes interessés auxquels nous offrirons des logements confortables et propres, dotes d'eau courante et d'égouts, en un mot, pourvus de toutes les commodités qui rendent a la notion de foyer sa veritable signification." Bref, on est decide en haut lieu à éffacer definitivement du decor des villes du pays la tara degradante du rancho insalubre et si le rythme des travaux en cours se maintient, ce sera chose accomplie dans peu de temps."

APPENDIX

CURRENT HOUSING PROJECTS IN NORTH AMERICA

Builder's story. (House and home, June 1956, vol, 9:6, pp. 157-161, with illus., plans.)
Westchester Estates, Cleveland, Ohio: Three brands of prefabricated houses in one tract of land.

Feiss, Carl. Critique: The architecture of redevelopment in U.S.A. (Progressive architecture, Aug. 1956, vol. 37:8, pp. 120-127,)with illus., plans.)
Lake Meadows, Chicago; Life Insurance project.

Housing costs in the consumer price index. Text below.

Oberlander, Peter, and Cornelia Oberlander. Critique: Canada's new towns.
(Progressive architecture, Aug. 1956, vol. 37:8, pp. 113-119, with illus.)
Kitimat.
Don Mills
Powell River.

Stein, Clarence S. Multi-family housing.
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Linden Houses, Brooklyn, N.Y.
St. Louis, Mo. Projects M-1-4, 5, 6, 7.

Housing costs in the consumer price index. (Monthly labor review, April 1956, vol, 79:4, pp. 442-446; with tables.)

Consumer price index abbreviated on text to CPI.

Procedures are described for measuring changes in prices of various items of shelter cost in the United States between 1953 and 1955. One analysis, referring to variation due to climate, follows:

"For the two clases of cities of less than 240,000 population a somewhat different method is used. Although the CPI sampling unit is generally a city the index is so designed that price changes in cities of a particular size group represent the average change for all cities of that size. Because the FHA does little business in small urban areas the number of observations from the 9 cities with populations of 30,500 to 240,000 and the 16 cities with populations of 2,500 to 30,500 in the CPI sample was not adequate. To provide sufficient observations, the sample of cities in the former size group was increased by selecting a city from each of the 27 cells used in the original selection of the CPI city sample i.e., the 9 original cities, plus 17 others (1 cell in the original diagram was empty). The sample for the smallest cities was increased by including all of the cities in the 16 cells of the original 216 cells already represented by CPI sample cities, and all those in an additional 16 cells selected from this diagram-a total of 333 cities. Use of this method yielded an enlarged sample stratified by income, climate, size and distance to major market-the four characteristics used in classifying cities of this size preparatory to selecting the CPI city sample.

Analysis of the variation in average price per square foot for the smallest cities, classified by each of these characteristics, indicated that although there was some variation associated with differences in income level, by far the greatest differences occurred for different climate groups. The price per square foot for the first 3 quarters of 1953 for new housing of less than 1,000 square feet for all small cities classified by income was

High income	$11.89
Moderate high income.	11.69
Moderate low income	11.21
Low income.	10.45

or a difference of about $1.40. For climate classes, the price per square foot was -

Hot climate	$9.53
Mild climate	10.28
Moderate cold	12.80
Cold	13.54

or a difference of about $4 per square foot.

Climatic differences cause seasonal variation in construction activity: building continues throughout the year in hot climates, but comes to a standstill or drops substantially during the winter-time in cold or moderately cold climates. To prevent seasonal variations in the proportion of sales by climate group from affecting the average price, prices are averaged within climate groups, and the groups are combined by constant weights.

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